



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,794	12/22/2004	Hidemitsu Takaoka	09852/020258-US0	3060

7278 7590 03/10/2006

DARBY & DARBY P.C.  
P. O. BOX 5257  
NEW YORK, NY 10150-5257

EXAMINER
----------

TURNER, ARCHENE A

ART UNIT	PAPER NUMBER
----------	--------------

1775

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

y

<b>Office Action Summary</b>	<b>Application No.</b> 10/519,794	<b>Applicant(s)</b> TAKAOKA ET AL.	
	<b>Examiner</b> Archene Turner	<b>Art Unit</b> 1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 5-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1775

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,5-7,8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakurai ((6,309,738) or Kobe Steel (JP 11-61380) or Sumitomo Electric (JP 07-097679) in view of Hitachi Tool (JP 09-323205) in further view of Sata et al (US 20050129986).

Sakurai or Kobe Steel or Sumitomo Electric disclose the claimed TiAlN alternating layers having the claimed thickness and Al content and the method of making the layers. They do not specifically disclose the addition of Zr, Ce or Y into the layers.

Hitachi Tool discloses the known addition of these components to TiAl compound films, within the claimed content.

Thus it would have been obvious to one of ordinary skill in the art to add the claimed Zr, Ce or Y into the layers of Sakurai or Kobe Steel or Sumitomo Electric, as this addition is known in the coating art to improve the performance of TiAl compound films, as shown by Hitachi Tools.

Sata et al discloses the known technique of varying the metallic components in a film through its thickness.

Art Unit: 1775

Thus it would have been obvious to one of ordinary skill in the art to provide this variation within a layer as shown by Sata et al to Sakurai or Kobe Steel or Sumitomo Electric in view of Hitachi Tool, as one of ordinary skill would know that it would improve the adherence of the coating.

3. Claims 2,12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsubishi Materials (JP 11-310867) in view of Hitachi Tool (JP 09-323205) in further view of Sata et al (US 20050129986).

Sakurai or Kobe Steel or Sumitomo Electric disclose the claimed TiAlN and TiAlCN layers having the claimed thickness and Al content and the method of making the layers. They do not specifically disclose the addition of Zr, Ce or Y into the layers.

Hitachi Tool discloses the known addition of these components to TiAl compound films, within the claimed content.

Thus it would have been obvious to one of ordinary skill in the art to add the claimed Zr, Ce or Y into the layers of Mitsubishi Materials, as this addition is known in the coating art to improve the performance of TiAl compound films, as shown by Hitachi Tools.

Sata et al discloses the known technique of varying the metallic components in a film through its thickness.

Thus it would have been obvious to one of ordinary skill in the art to provide this variation within a layer as shown by Sata et al to Mitsubishi Materials in view of

Hitachi Tool as one of ordinary skill would know that it would improve the adherence of the coating.

4. Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsubishi Materials (JP 11-310867) in view of Hitachi Tool (JP 09-323205) in further view of Sata et al (US 20050129986).

Sakurai or Kobe Steel or Sumitomo Electric disclose the claimed TiAlN and TiAlCN layers having the claimed thickness and Al content and the method of making the layers. They do not specifically disclose the addition of Zr, Ce or Y into the layers.

Hitachi Tool discloses the known addition of these components to TiAl compound films, within the claimed content.

Thus it would have been obvious to one of ordinary skill in the art to add the claimed Zr, Ce or Y into the layers of Mitsubishi Materials, as this addition is known in the coating art to improve the performance of TiAl compound films, as shown by Hitachi Tools.

Sata et al discloses the known technique of varying the metallic components in a film through its thickness.

Thus it would have been obvious to one of ordinary skill in the art to provide this variation within a layer as shown by Sata et al to Mitsubishi Materials in view of Hitachi Tool as one of ordinary skill would know that it would improve the adherence of the coating.

5. Applicant's arguments with respect to claims 1-2,5-14 have been considered but are moot in view of the new ground(s) of rejection.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Archene Turner whose new telephone number is (571) 272-1545. The examiner can normally be reached on Monday, Wednesday through Friday from 10:30 am. to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Please remember to include on the fax, the art unit 1775, serial number and Examiner's name.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to be 'A. A. Turner', with a long horizontal line extending to the right.

**A. A. Turner**  
**Primary Examiner**  
**Group 1700**